

INPUT Client Presentation

**DISTRIBUTED PROCESSING SERVICES
IN THE
NEW TELECOMPUTING ENVIRONMENT**

Presented by:

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Senior Consultant

July 24, 1986: Los Angeles

July 30, 1986: New York City

AGENDA

- **Methodology**
 - **RCS Overview**
 - **The DPS Response**
 - **User Views**
 - **Vendors**
 - **Market Forecast**
 - **Recommendations**
-

RCS RESPONSES TO USER MICROS, MINIS, MAINFRAMES

(1)

- **Retrained Sales Staff**
 - **Add Value to Processing/Communications**
 - **Features**
 - **Repackaging: PC/RCS, DPS**
 - **Repricing**
 - **Software/Systems Sales**
-

**RCS RESPONSES TO USER
MICROS, MINIS, MAINFRAMES**

(2)

- Professional Services
 - Target Niches
 - Consolidate to Survive
 - DROP OUT!!
-

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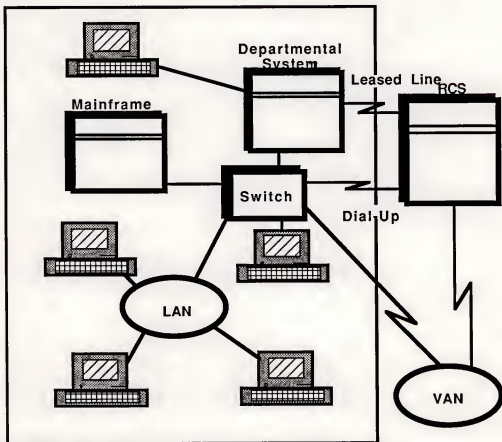
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DISTRIBUTED PROCESSING SERVICE:

"Processing via RCS computers and user dedicated computers at the user or vendor site."



VARIETIES OF DPS



THE UNIVERSITY OF CHICAGO



THE UNIVERSITY OF CHICAGO
CHICAGO, ILL.

DPS Defined

USER DEDICATED PROCESSOR

- Customer Site (Department or IS)
 - RCS Site
 - Typically Minis
 - Downloaded Software
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DPS Defined

LINKS TO RCS

- Leased Line or VAN
 - "Significant" Applications
 - "Significant" Power
 - Advanced Development Tools
 - Data Bases
 - Monitoring/Control
-

DPS Defined

FIXED PRICE/LONG TERM CONTRACT

- **Bundled or Unbundled**
 - **"Locks In" Customer**
 - **Revenue Stream for Vendor**
 - **Lose of Flexibility for User**
-

1870

**BUNDLED VERSUS UNBUNDLED
DPS SERVICE**

- **Even Split in Preference**

 - **Bundled**
 - **Ease - Don't want to Piece Together**
 - **No Internal Expertise**
 - **One Cost Covers All**
 - **Fewer Service Problems, Finger Pointing**
-

BUNDLED VERSUS UNBUNDLED DPS SERVICE

● Unbundled

- Every Aspect Should Be Examined
 - Better Cost Control
 - Can Provide Some Pieces Ourselves
 - Like to Piece Together Ourselves
 - More Alternatives - Can Substitute Pieces
-

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**DPS ADVANTAGES
(Users Comments)**

- **Applications/Data Bases Available**
 - **Do Not Need Staff or Owned Equipment**
 - **Internal Development More Costly**
 - **Control - Do Not Trust Our Programmers**
 - **Way to Try Applications Before Spending Money**
-

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DPS DISADVANTAGES (User Comments)

- **Cost**
 - **In-House More Cost Effective**
 - **Loss of control - at Mercy of Outside Service**
 - **At Times, Redundant with Internal System**
-



WHY VENDORS OFFER DPS

- High Profit Margins
 - Alternative Delivery Mode
 - Expands Service Options, Product Mix
 - Participation in DDP/Decentralization Trends
 - Fills Gap Between Full RCS Services and Wholly Internal Solutions
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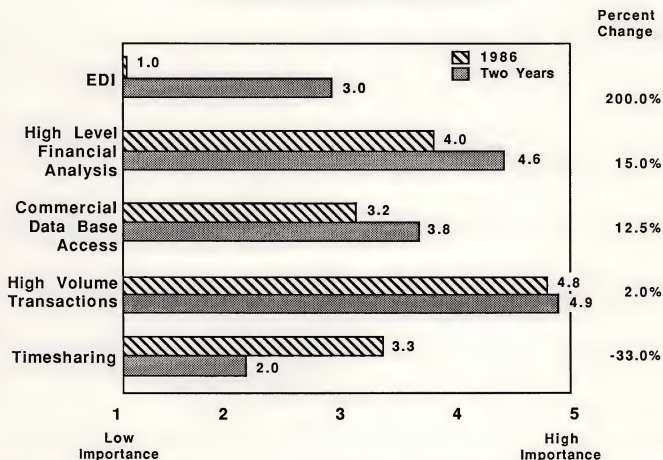
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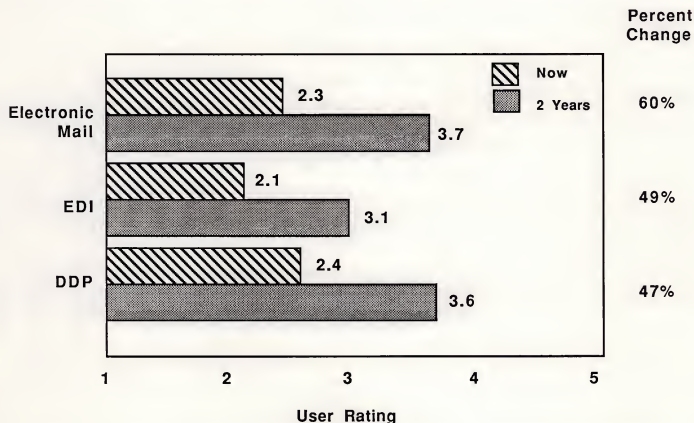
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RCS USERS - APPLICATION IMPORTANCE Partial Sample Results



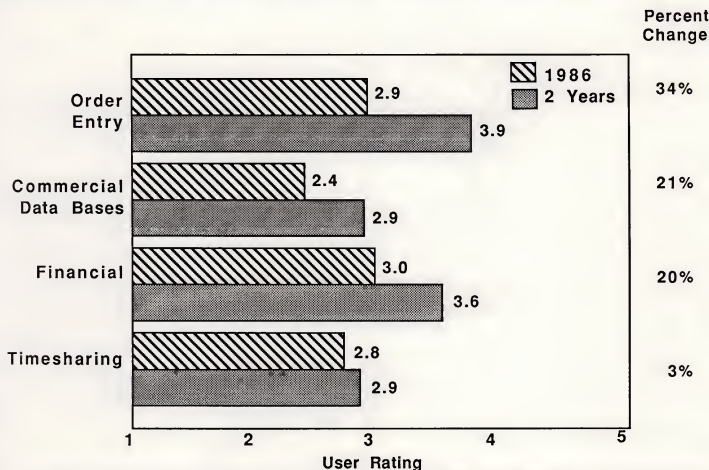


NETWORK SERVICES USERS APPLICATION IMPORTANCE SELECTED RESULTS



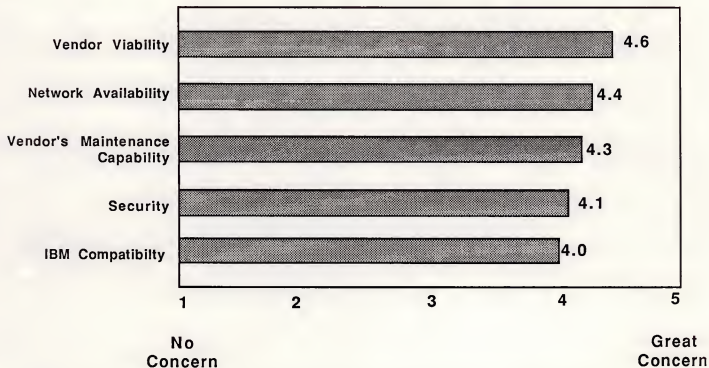


NETWORK SERVICES USERS APPLICATION IMPORTANCE SELECTED RESULTS

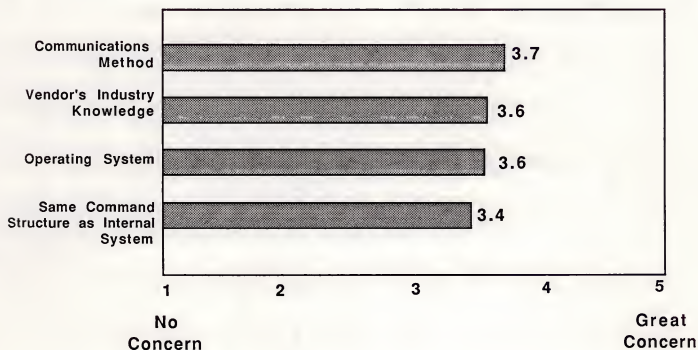




USER/RCS CONCERNS



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USER/RCS CONCERNS (Cont.)

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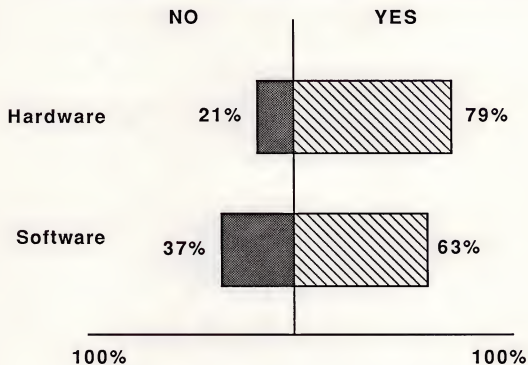
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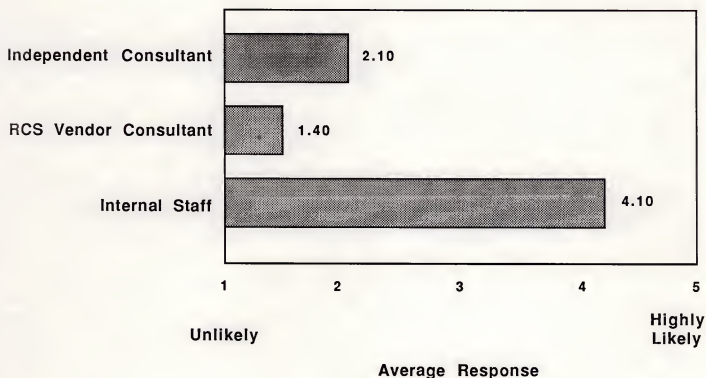
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RCS INTEGRATION EXPECTATIONS





RCS USERS USE OF CONSULTANTS



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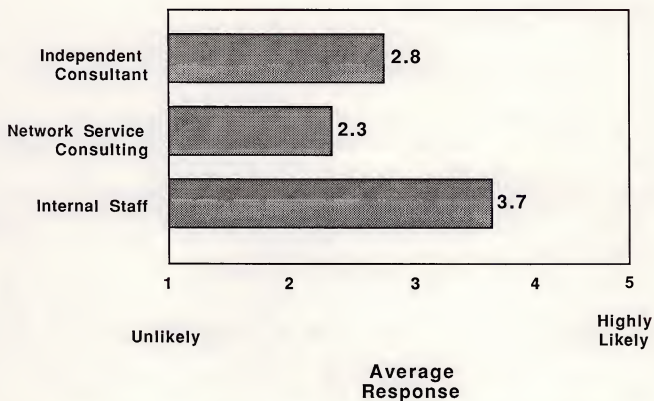
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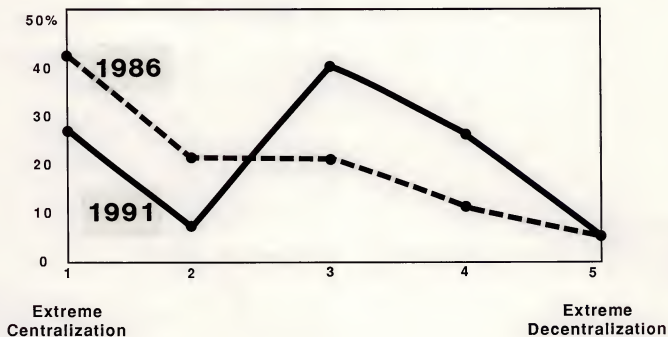
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NETWORK SERVICE USERS USE OF CONSULTANTS



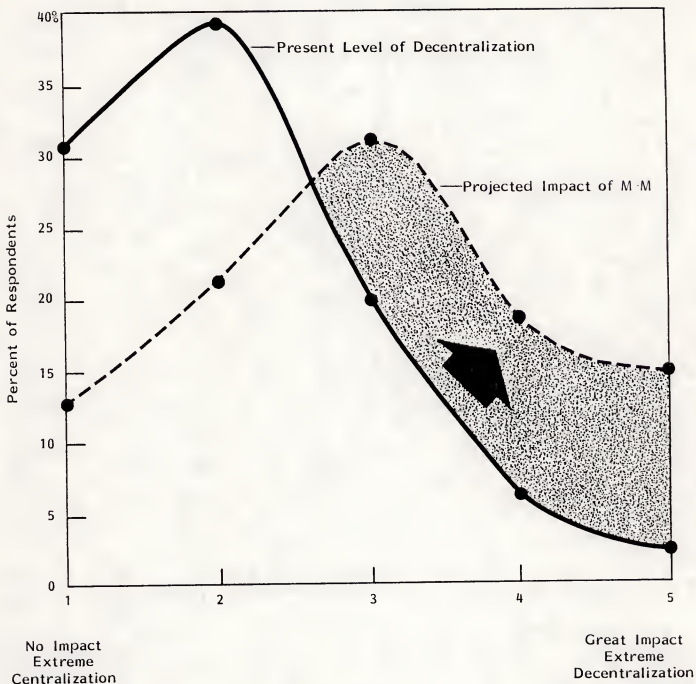


THE TREND TOWARDS DECENTRALIZATION





M-M IS SHIFTING I.S. TOWARD DECENTRALIZATION



ADP - ONSITE

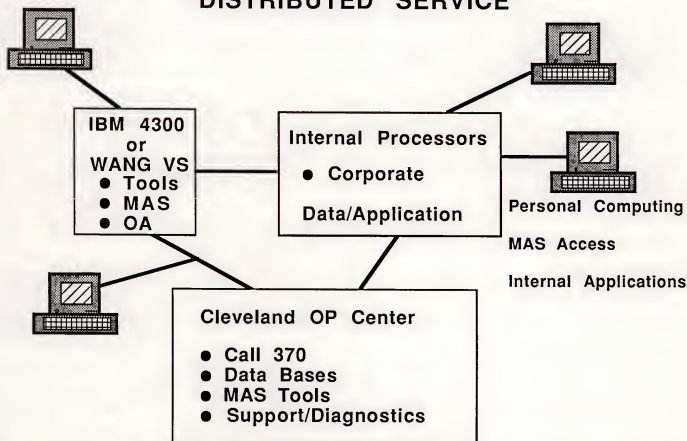
- **DEC Minis Linked to Autonet**
 - **Shared Onsite - Multiple Customers**
 - **Datasite - Off Line Data Entry, On-Line Data Retrieval/Reports**
 - **Competitive Pricing to Internal Systems**
 - **Value Added Consulting Services a Competitive Strategy**
 - **Bundled Maintenance, Unbundled Software**
-

CDC DISTRIBUTED SERVICE

- **IBM or WANG Minis**
 - **Links to Management Applications Systems, Call/370**
 - **MAS Industry/Client Customized**
 - **Seen as Optional Delivery Method, Bridge Between Internal Systems and RCS Based on Cost**
-



CDC - BIS DISTRIBUTED SERVICE





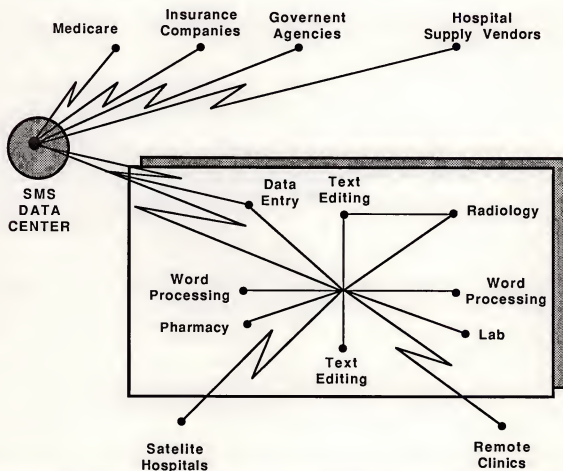
CDC DECIMUS

- **California Banks, Federal Agencies**
 - **Burroughs Minis, Systematics Software**
 - **Industry Specialization**
 - **DP to Support Marketing, Compliance**
-

GEISCO MARK III DDP

- **TI Minis, 16 Terminals**
 - **Access to VAN and RCS**
 - **Specific Cross Industry Solutions - Lacked Software**
 - **No Longer Aggressively Sold**
 - **Shift to Micro Interfaces**
-

SHARED MEDICAL EXTENDED DPS





**CROWNTEK
DEDICATED PROCESSING**

- Minis and Mainframes, IBM and PCM
 - Link Primarily for Back-up and Overflow
 - Blends with Facilities Management
 - Data Center Design, Equipment/Communications Solution, Management
 - Accounts: Government, Small-Medium Companies
-

1871

1. The first of the year was a
very cold one, and the
frost was very severe.
The snow was very deep,
and the wind was very
strong. The weather was
very disagreeable, and
the people were very
suffering. The
frost was very severe,
and the snow was very
deep. The wind was very
strong, and the weather
was very disagreeable.
The people were very
suffering.

2. The second of the year was a
very warm one, and the
frost was very light.
The snow was very shallow,
and the wind was very
weak. The weather was
very pleasant, and
the people were very
happy. The
frost was very light,
and the snow was very
shallow. The wind was very
weak, and the weather
was very pleasant.
The people were very
happy.

NDC (RAPIDATA)

- **RCS, FM, Professional Services**
 - **DataStat I - DG - based Mini for Pharmacy Management, Link to RCS**
 - **DataStat II PC/AT&XT Turnkey System Replaces On-Line System**
 - **Increasing Revenues but, RapiData to Be Sold or Discontinued**
-



CSC

- Increased Awareness
 - International Focus
 - PC Software Announcements
 - Micros to 327X Hosts (Simware)
 - PC/Notice - ASCII or Binary File Transfers
 - Orion Agreement for Mini Networking Via INFONET
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ELEMENTS OF THE DPS MARKET

User Site Hardware

- Leased
- Purchased

Software

- Licensed
 - Purchased
 - Local or Remote Access
-

1881

The first of the year was a very dry one.

The second of the year was a very dry one.

The third of the year was a very dry one.

The fourth of the year was a very dry one.

The fifth of the year was a very dry one.

The sixth of the year was a very dry one.

ELEMENTS OF THE DPS MARKET

Processing Services

- Batch, Pseudo-Batch, Interactive
- Data Base Access
- Messaging (EDI, E-Mail)
- Applications and Development

Networking

- Leased Lines
 - VANS
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ELEMENTS OF THE DPS MARKET

Professional Services

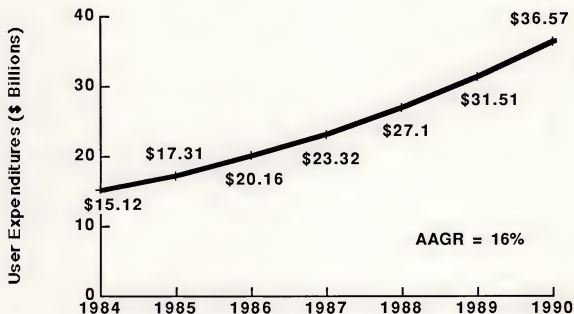
- Customized Software
- Training, Support, Documentation
- Facilities Planning
- Facilities Management
- Maintenance

Other

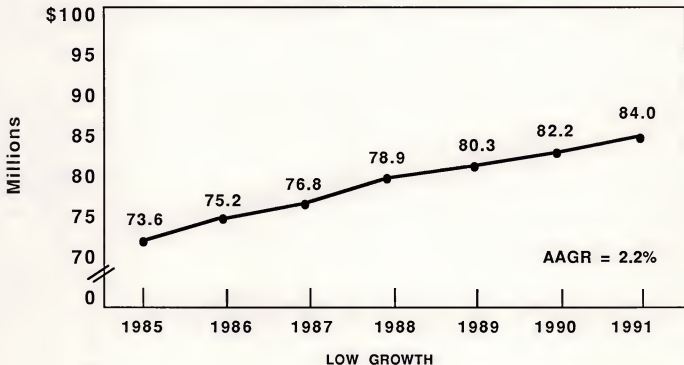
- Printing, Mailing, Media Conversion, Etc.
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**PROCESSING/NETWORK SERVICES AND
FACILITIES MANAGEMENT FORECAST
(Includes VANs)**



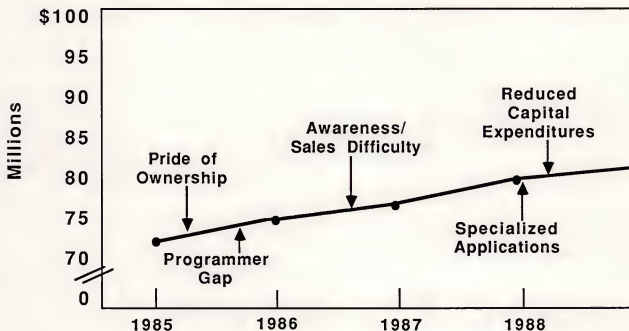


**DPS FORECAST
(Mini Based)**

New Accounts Replace Internal Migration
Small/Medium Companies Usage Grows Somewhat
Micros/LANs/MUS Competes at Low End

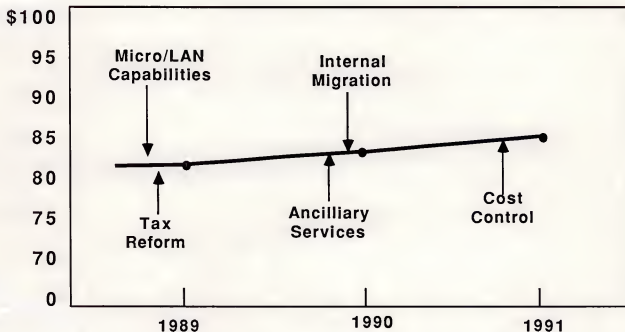
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FACTORS INFLUENCING DPS MARKET





FACTORS INFLUENCING DPS MARKET



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A SHIFT IN ORIENTATION

DISTRIBUTED
PROCESSING
SERVICES

Dedicated Mini
Vendor Supplied



COOPERATIVE
PROCESSING
SERVICES

Micros/LANS
User Supplied



TWO DECADES OF ACHIEVEMENT

"If, over the last 20 years, the auto industry achieved the same improvements as computers, a 1987 car could circle the globe on a tank of gas, weigh 15 pounds and cost under \$1.00!."

THE UNIVERSITY OF CHICAGO

IN THE DEPARTMENT OF CHEMISTRY

ANALYSIS OF THE
COMPOSITION OF THE
RESIDUE OF THE
EXPERIMENT

REPORT OF THE

COMMISSIONERS OF THE

SUITABLE FOR MICRO SOLUTION

- Data Collection
 - Simple Models/Spreadsheets
 - Simple Data Analysis: Pricing, Cost Estimates
 - Simple Accounting/Transactions
 - Small Data Bases, Limited Communications
 - Convenience/Personal Applications
-

MICRO/RCS SERVICES STRATEGIC CLASSIFICATION

User Cost Reduction

- Makes Underlying Services More Attractive, Competitive
- Micros Replace Dumb Terminals to Capture, Edit Data, Do Off-Line Reports

In Place Micro Leverage

- Uses Installed Micros and PC Clusters for:
 - Pure Networks Without Processing
 - Data Base Access
 - Infrequent Applications
-



MICRO/RCS SERVICES STRATEGIC CLASSIFICATION

New Applications

- New Territory Such as:
 - Complex Distributed and Consolidated Modeling
 - Cash Management
 - Knowledge Bases (versus Data Bases)
 - Generally, a New Technique Targets Area Previously Limited By Economics, Time or Convenience Constraints
-



Recommendations: Remote Computing Services

**EVERY RCS IS UNIQUE - REQUIRES SYSTEMATIC ANALYSIS
STEPS:**

- 1. Know the Challengers: Use Competitive Technologies**
- 2. Know Thyself: - State of the Technology**
 - Specialized Peripherals**
 - Industry Specialization**
 - Network/Software/Integration Expertise**
 - Data Bases**
 - Ancillary Services**
 - Marketing Strength**

**Capitalize on Differences Between User Internal and
Your DPS Solution**

1880

Received of the
Hon. Secy of the Navy
the sum of \$1000
for the purchase of
the ship "Albatross"
for the service of the
U. S. Navy
this 1st day of
January 1880
at Washington
D. C.

Recommendations: Remote Computing Services

**DEFENSIVE STRATEGIES SHORT TERM,
AGGRESSIVE STRATEGIES LONG TERM**

STEP 3:

- **Limit Losses: Cash Cows with Terminal Illness**
- **Strengthen Marginal Services with Added Value**
- **Exploit Winners: Sell Aggressively**

**Introduce New Services with
same Winning Characteristics**

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Recommendations: Remote Computing Services

PROVIDE FULL CUSTOMER SERVICE

- **Data Bases, Advanced Tools, Custom Programming, Training, Consulting, Facilities Management, etc.**
 - **Risk: Customer Confusion**
 - **Remedy: Tailor Options to Specific Needs**
-

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the sum of \$1000
for the purchase of
the ship "Albatross"
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the ship "Albatross"
for the U.S. Navy
and for the purchase of
the ship "Albatross"
for the U.S. Navy

Recommendations: Remote Computing Services

**TARGET COMPLEX APPLICATIONS
REQUIRING "SIGNIFICANT" MACHINES**

- If Feasible, Restrict Application to DPS/RCS Use
 - Important Aspects: Data Bases
 - Messaging (E-Mail, EDI)
 - Overload and Peak Processing
 - Multi-Vendor Support
 - Remote Diagnostics
 - Investigate Link Alternatives: VSAT, FM SCA, VBI, LADT
-

Recommendations: Remote Computing Services

MARKETING

- **Leverage Market Experience**
 - **Cross Sell "Value Added" Services**
 - **Investigate Pricing:**
 - **Per Transaction versus Character-Based**
 - **Pricing Tiers**
 - **Discounts, Premiums, Credits Towards Purchase**
-

TABLE

Description of the sample	
1. Sample 1	Sample 2
2. Sample 3	Sample 4
3. Sample 5	Sample 6
4. Sample 7	Sample 8
5. Sample 9	Sample 10
6. Sample 11	Sample 12
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41. Sample 81	Sample 82
42. Sample 83	Sample 84
43. Sample 85	Sample 86
44. Sample 87	Sample 88
45. Sample 89	Sample 90
46. Sample 91	Sample 92
47. Sample 93	Sample 94
48. Sample 95	Sample 96
49. Sample 97	Sample 98
50. Sample 99	Sample 100

Notes: The samples are listed in the order in which they were collected.

Recommendations: Remote Computing Services

MARKETING

- **Develop Strategies for Small to Medium Sized Companies = Telemarketing**
 - **Not Targeted by National Account Reps**
 - **Smaller Companies Unable to Cope**
 - **Mid Market Likely to Go Outside for Some Processing**
 - **Partner with Banks, Financial Services to Sell to Mid Market**
 - **Sell to End Users/Involve IS**
 - **Long Term Contracts with Adjustment, Upgrade Clauses**
-

1875

Received of the Treasurer of the

Board of Directors

the sum of

Five hundred and

no more

for

the sum of

Five hundred and

no more

for

the sum of

Five hundred and

no more

for

Recommendations: Remote Computing Services

CYCLES

**Identify Transient Needs Prior to Internal Upgrade
then Maintain Customer with Strategically Important
Applications**

SOFTWARE

Buy, Not Build

**Consider Royalty Arrangements to Minimize Risk from
Unproven Packages Target "Function Specific"
Applicability - User Interface**



Recommendations: Remote Computing Services

TECHNOLOGY

- **Partner with Hardware Vendors for Turnkey Solutions**
 - **Expertise in Few Products Better than Passing Knowledge of Many**
 - **Plan Upgrades to Meet or Exceed Customer Expectations**
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Recommendations: Remote Computing Services

TECHNOLOGY

- **Evaluate Advantages to "Cutting Edge" Image**
 - **Technology Assessment Program**
 - **Differentiate with Access to Advanced Equipment**
 - **Provide Pretest Access**



DPS OPPORTUNITIES

Electronic Data Interchange

- User Site Hardware for Internal Applications
- Links to RCS for EDI Translations, Transmittal and Other RCS Based Applications/Data Bases (Shipping Rates)

Geographic Opportunities

- Selling Services in Remote Locations, Competing with Hardware Vendors
-

Page 1

DPS OPPORTUNITIES

Medical Opportunities

- Smaller Institutions with Complex Needs
- Communications of Internal Systems more Important
 - Ancilliary Services: Pharmacies, Nursing, Insurance
 - Data Bases of Chemicals/Toxics (Occupational Health)
 - Benefits Coordination

Scientific and Engineering Opportunities

- "Number Crunching" DPS/RCS Configurations
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SUPER COMPUTING AND DPS

- **Currently CDC and Boeing Provide "Super" Service**
 - **Academic Research Facilities Available**
 - **Current Applications: Scientific and Engineering "Number Crunching"**
 - **Seismic Data Analysis**
 - **Simulations**
 - **Weather Forecasting**
-



SUPER COMPUTING AND DPS

- Emerging Applications: - Genetic, Pharmaceutical Research
 - CAE/CAD
 - Medical Imaging
 - Computer Animation
 - Econometric Modelling

 - Future Applications: - Business Forecasting
 - Artificial Intelligence
 - ?????????????
-

SUPER COMPUTING AND DPS

- **More Capacity/More Demand/More Capacity**
 - **More Super Computer Science Graduates**
 - **Developing Business Applications, Micros and Terminals**
 - **Japanese Competition Stimulates Market**
 - **More Super Mini Installations**
-

SUPERCOMPUTING AND DPS

Opportunities

- Professional Services
 - Micro and Supermini Front Ends
 - Testing New Applications
 - Companies Needing Highly Accurate Information
 - Massive Data Bases
 - Non-Classified Research
-

Page 1 of 1

DPS OPPORTUNITIES

Value Added Data Base Access

- Micro/Mini Front Ends Ease Search
 - Expert Systems
 - Medical Diagnostics
 - Equipment Maintenance/Troubleshooting
 - Network Planning
 - Large Scale Project Management
 - Demographic Analysis
 - AI May Require Supercomputer Power
-

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DPS OPPORTUNITIES

Optical Disc Data Base Applications

- CD-ROM Used Locally
 - Software handles RCS Data Base Connection/Search
-

Page 1

1. Introduction

2. Methodology

3. Results and Discussion

4. Conclusion

5. References

6. Appendix

7. Acknowledgements

DPS OPPORTUNITIES

Telecommunications

- Telephone Management Services
 - Inventory, Repair Bureau, Network Planning, Scheduling
 - Telephone Billing Services
 - Cellular Clearinghouse
 - Independent Telcos: 58% use RCS (@ 800)
 - Trend Towards Turnkey Systems
-

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DPS OPPORTUNITIES

Telecommunications

- BOC Subsidiaries Often Use RCS
 - DPS Processor Handles Internal Applications, RCS Link for Toll Rating, Specialized Applications, Ancillary Services (Printing)
 - Requires: Up-to-Date Data Bases: Tariffs, Market Analysis
-

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DPS OPPORTUNITIES

Broadcast Industry Opportunity

- "Avails" RCS Data Base Tied to Demographic Data Base for Buyer
 - Turnkey System Prepare Electronic Logs, Using Library copy or Pre-Recorded Commercials (Station Automation)
 - Issue: Broadcaster Willingness to Release Competitive Information Re: Unsold Time
-

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1870-1871

1872-1873

1874-1875

1876-1877

1878-1879

1880-1881

1882-1883

1884-1885

1886-1887

USER RECOMMENDATIONS

- **Evaluate Need for Flexibility - Present/Future**
 - **Opportunity to Buy What's Most Needed, Rent for Occassional Use**
 - **Opportunity to Move Applications Inside**
 - **Access to Most Advanced Software, Tools, Processors**
-

1. *Staphylococcus aureus*

2. *Streptococcus*

Streptococcus pneumoniae

Streptococcus pyogenes

Streptococcus lactis

Streptococcus thermophilus

Streptococcus faecalis

USER RECOMMENDATIONS

- **Risks:**

- **Getting Locked into Quickly Obsolete Technologies**
 - **Hardware Compatibility**
 - **Ease of Internal Conversion**
-

USER RECOMMENDATIONS

Service Requirements

RCS = Remote Computing SERVICE

- Processing
 - Consulting
 - Customized Services
 - Data Entry
 - Special Services
 - Integration Expertise
 - Industry Expertise
 - Maintenance
 - Etc.
-



USER RECOMMENDATIONS

Personnel Factors

Recruiting and Retaining IS Professionals

- Programmer Shortage?

Support Departmental Users

Less Knowledgeable

DPS Should Dovetail with Jargon, Methods, i.e., Be
Function Specific

Emotional Factors

Control

Pride of Ownership



USER RECOMMENDATIONS

- **Costs Analysis**
 - **Capital Expenses Compared to Continued Manual Operations**
 - **Break Even Point**
 - **Unquantified: Value of Information**
-

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USER RECOMMENDATIONS

- **Cost Analysis**

- | | |
|------------------|---------------|
| - Hardware | - HVAC |
| - Software | - Floor Space |
| - Communications | - Personnel |
| - Maintenance | - Training |
| - Supplies | - Management |
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USER RECOMMENDATIONS

- I.S. Typically Costs 1% of Annual Revenues
- 1.5% of I.S. Budget Is Typically Applied to External Processing



USER RECOMMENDATIONS

DPS fits companies unwilling or unable to handle the complex buying and management decisions associated with complicated internal processing requirements, which also need service bureaus and external data bases.

DPS fits workgroups requiring occasional access to often function specific RCS applications, a work group processor for shared information and departmental applications, and access to significant RCS resources.



EXTERNAL VERSUS INTERNAL

DDP

DPS

